Waterless Drop-In Merchandiser

MODELS DRPN1, DRPN3, DRPN5, DRPN7

Service Manual

Serial Numbers 122157 and Higher

BKI®

Fresh ideas in foodservice equipment

Warranty Information

LIMITED ONE YEAR WARRANTY

BKI (The “Company”) warrants to the original purchaser/user, that at time of shipment from the Company factory, this equipment will be free from defect in materials and workmanship. Written notice of a claim under this Warranty must be given within **ONE YEAR AND THREE MONTHS** from date of shipment from the factory. Defective conditions caused by abnormal use or misuse, lack of maintenance, damage by third parties, alterations by unauthorized personnel, acts of God, failure to follow installation instructions or any other events beyond the control of the company will **NOT** be covered under Warranty. The obligation of the Company under this Warranty shall be limited to repairing or replacing (at the option of the company) any part that is defective in reasonable opinion of the Company. The user will have the responsibility and expense of removing and returning the defective part to the Company as well as the cost of reinstalling the replacement or repaired part.

IN NO EVENT SHALL THE COMPANY BE LIABLE FOR LOSS OF USE, LOSS OF REVENUE OR LOSS OF PRODUCT OR PROFIT OR FOR INDIRECT OR CONSEQUENTIAL DAMAGES INCLUDING BUT NOT LIMITED TO, FOOD SPOILAGE OR PRODUCT LOSS. WARRANTY DOES NOT COVER GLASS BREAKAGE. THE ABOVE WARRANTY IS EXCLUSIVE AND ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, ARE EXCLUDED INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THIS WARRANTY SHALL APPLY ONLY WITHIN THE CONTINENTAL UNITED STATES, ITS TERRITORIES, AND POSSESSIONS AND IN CANADA.

LIMITED NINETY DAY LABOR WARRANTY

All labor necessary to repair or replace factory defective parts will be performed, without charge, to the end user, by service personnel of a ***BKI*** Authorized Distributor during the first ninety days after the date of installation of the new equipment.

Replacement parts: Any appliance replacement part, except lamps and fuses, which proves to be defective in material or workmanship within 90 days from date of original installation will be repaired or replaced without charge F.O.B. Factory, Simpsonville, S.C. or F.O.B. authorized distributor.

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Introduction

Congratulations! You have chosen a Waterless Drop-In Merchandiser. It consists of one or more hot food waterless wells and a digital controller for setting, monitoring and controlling the temperature of each well.

This unit is manufactured by BKI which assures you of the finest in design and engineering -- that it has been built with care and dedication -- using the best materials available. Attention to the operating instructions regarding proper installation, operation, and maintenance will result in long lasting dependability to insure the highest profitable return on your investment.

NOTICE

PLEASE READ THIS ENTIRE MANUAL BEFORE OPERATING THE UNIT. If you have any questions, please contact your BKI Distributor. If they are unable to answer your questions, contact the BKI Technical Service Department, toll free: 1-800-927-6887. Outside the U.S., call 1-864-963-3471.

This unit is to be sealed to the surface where installed to conform to NSF requirements. (Dow Corning RTV #732 Multi purpose Sealant.)

Safety Precautions

Always follow recommended safety precautions listed in this manual. Below is the safety alert symbol. When you see this symbol on your equipment, be alert to the potential for personal injury or property damage.

Safety Signs and Messages

The following Safety signs and messages are placed in this manual to provide instructions and identify specific areas where potential hazards exist and special precautions should be taken. Know and understand the meaning of these instructions, signs, and messages. Damage to the equipment, death or serious injury to you or other persons may result if these messages are not followed.

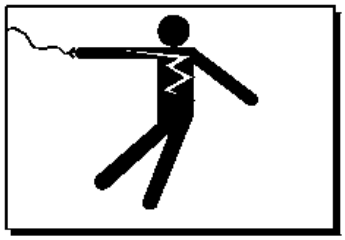
⚠DANGER This message indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠WARNING This message indicates a potentially hazardous situation, which, if not avoided, could result in death or serious injury.

⚠CAUTION This message indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

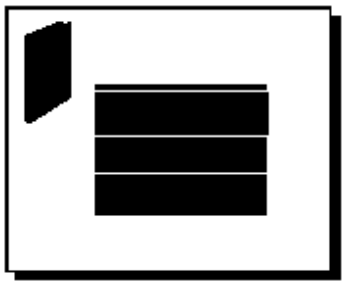
NOTICE This message is used when special information, instructions or identification are required relating to procedures, equipment, tools, capacities and other special data.

Safe Work Practices



Beware of High Voltage

This equipment uses high voltage. Serious injury can occur if you or any untrained or unauthorized person installs, services, or repairs this equipment. Always Use an Authorized Service agent to Service Your Equipment.



Keep this manual with the Equipment

This manual is an important part of your equipment. Always keep it near for easy access.

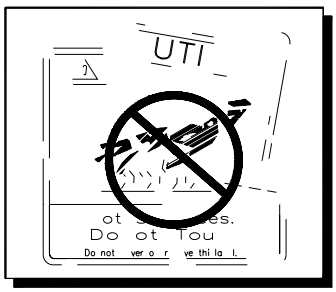
If you need to replace this manual, contact:

BKI
Technical Services Department
P.O. Box 80400
Simpsonville, S.C. 29680-0400
Or call toll free: 1-800-927-6887
Outside the U.S., call 864-963-3471

Protect Children

Keep children away from this equipment. Children may not understand that this equipment is dangerous for them and others.

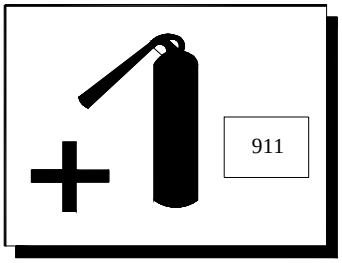
NEVER allow children to play near or operate your equipment.



Keep Safety Labels Clean and in Good Condition

Do not remove or cover any safety labels on your equipment. Keep all safety labels clean and in good condition. Replace any damaged or missing safety labels. If you need a new safety label, obtain the number of the specific label then contact:

BKI
Technical Services Department
P.O. Box 80400
Simpsonville, S.C. 29680-0400
Or call toll free: 1-800-927-6887
Outside the U.S., call 864-963-3471

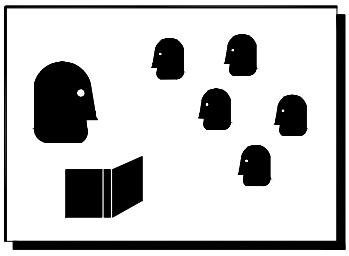


Be Prepared for Emergencies

Be prepared for fires, injuries, or other emergencies.

Keep a first aid kit and a fire extinguisher near the equipment. You must use a 40-pound Type BC fire extinguisher and keep it within 25 feet of your equipment.

Keep emergency numbers for doctors, ambulance services, hospitals, and the fire department near your telephone.



Know your responsibilities as an Employer

- Make certain your employees know how to operate the equipment.
- Make certain your employees are aware of the safety precautions on the equipment and in this manual.
- Make certain that you have thoroughly trained your employees about operating the equipment safely.
- Make certain the equipment is in proper working condition. If you make unauthorized modifications to the equipment, you will reduce the function and safety of the equipment.

Installation

⚠WARNING Serious injury, equipment damage or death could result if attempting to install this unit yourself. Ensure that an authorized BKI service agent installs the unit.

Instructions For Shipping Damage

You are responsible for filing all freight claims with the delivering truck line. Inspect all cartons and crates for damage when they arrive. If there is damage noted to shipping crates or cartons, or, if a shortage is found, note this on the bill of lading (all copies) before signing.

If damage is detected when the equipment is uncrated, immediately call the delivering truck line and follow up the call with a written report indicating concealed damage to your equipment. Ask for an immediate inspection of your concealed damage item. Crating material MUST be retained to show the inspector from the truck line.

Installation Instructions

1. Obtain a suitable countertop location for the unit.
2. Cut a hole in the countertop measuring 41 7/16” x 24 3/8”.
3. Orient the unit for proper positioning of the controller then carefully lower unit into the cutout area.
4. Wire the unit according to the guidelines below.
5. Seal the countertop to conform to NSF Standard 4, Item 4.28. (Dow Corning RTV #732 Multi purpose Sealant.)

Electrical Information

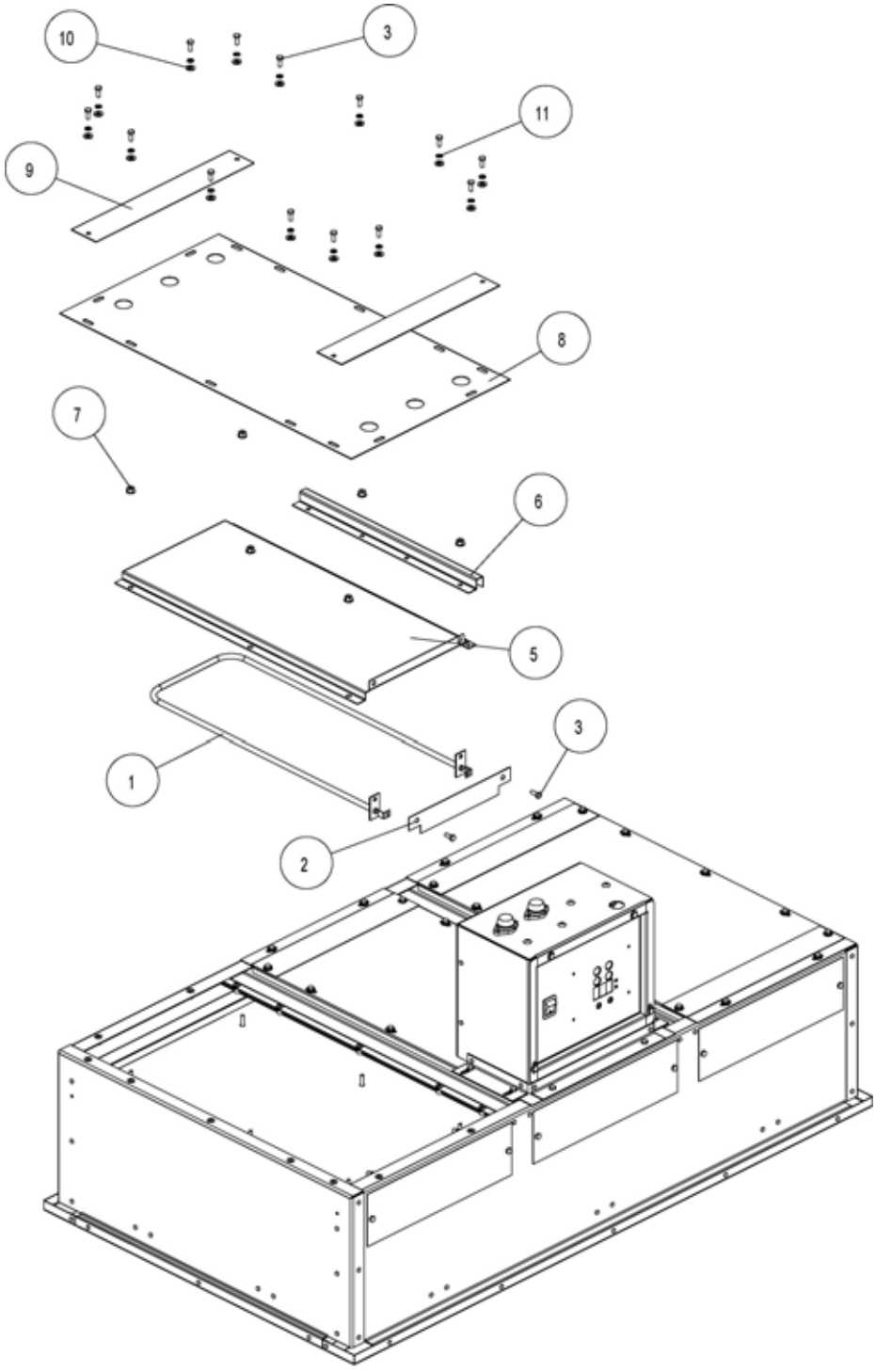
⚠WARNING Electrocution, equipment failure or property damage could result if an unlicensed electrician performs the electrical installation. Ensure that a licensed electrician perform the electrical installation in accordance with local codes, or in the absence of local codes, with the National Electrical Code, ANSI NFPA 70-20XX.

This unit, when installed by an authorized BKI service agent, must be wired for use in accordance with all applicable local, state, and federal codes. For specific electrical requirements and connections refer to the wiring diagram attached to the unit or provided in the Service Manual.

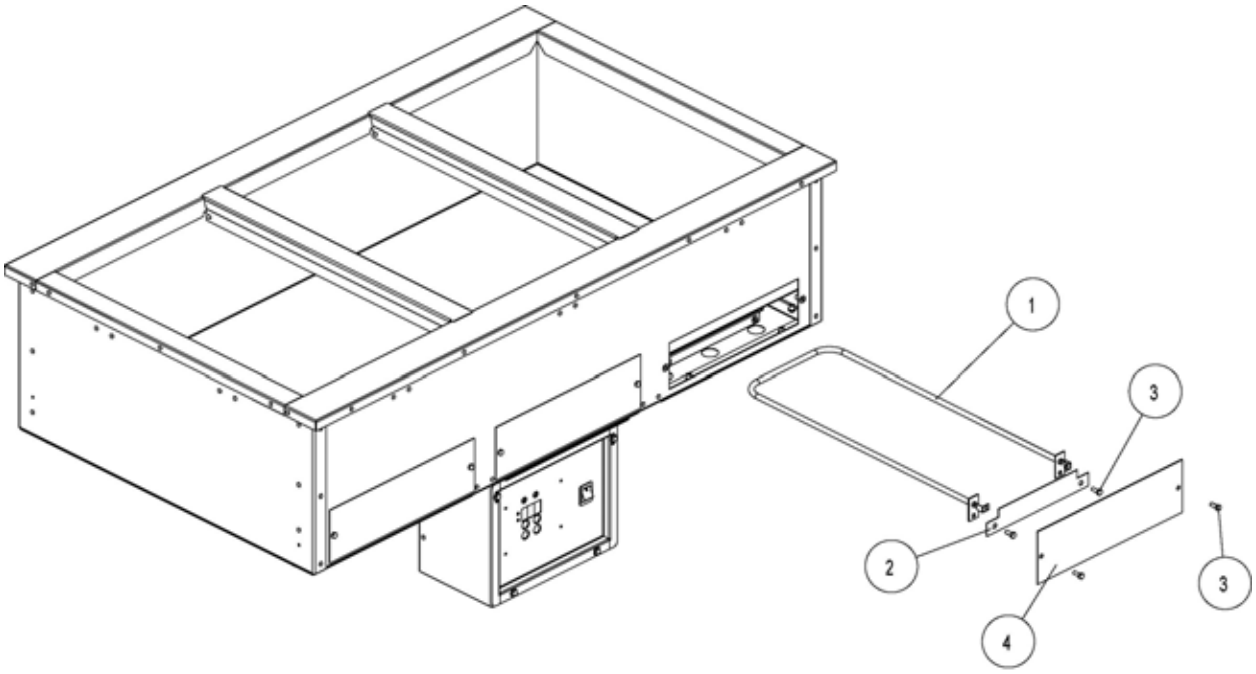
Replacement Parts

Use the information in this section to identify replacement parts. To order replacement parts, call your local BKI sales and service representative. Before calling, please note the serial number on the rating tag affixed to the unit.

Well Assembly Components



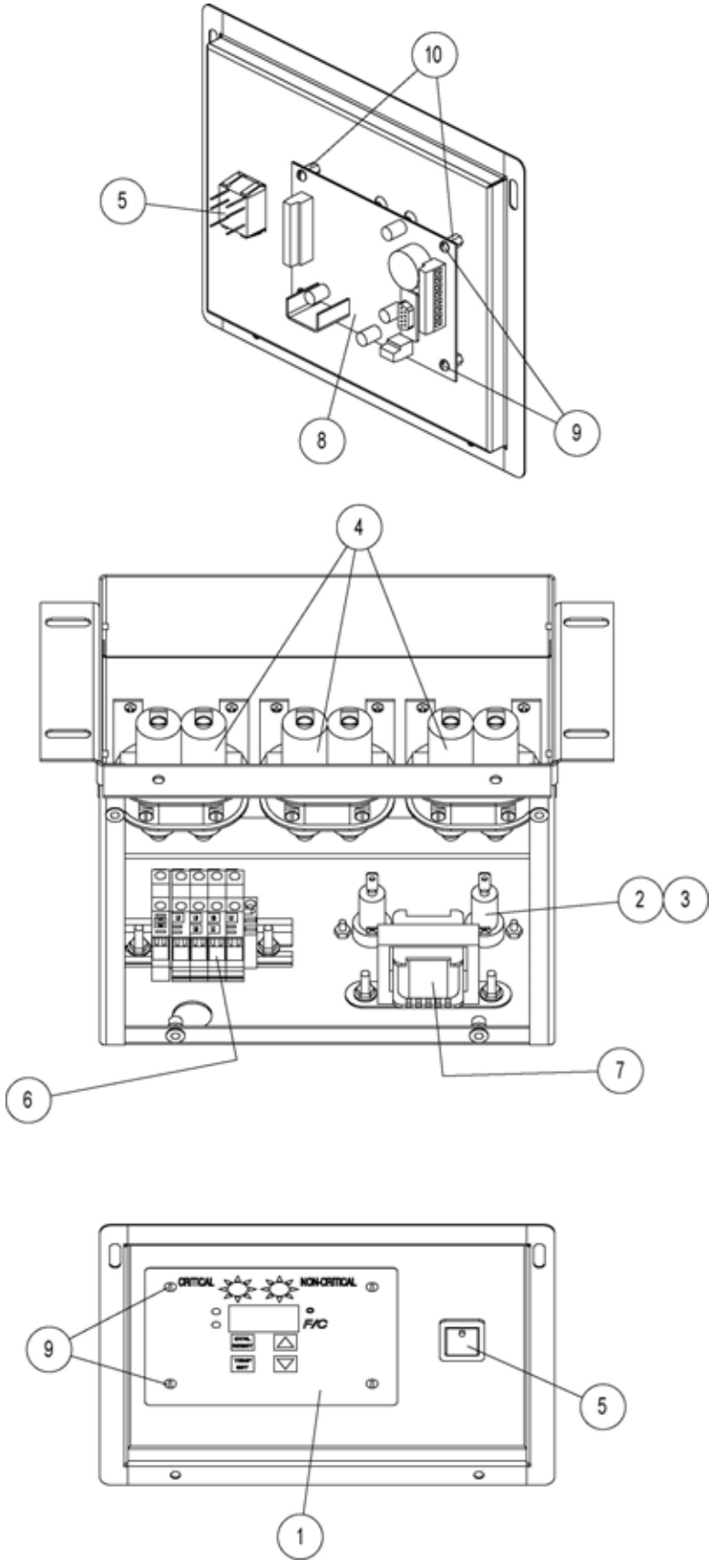
BOTTOM ACCESS



FRONT ACCESS

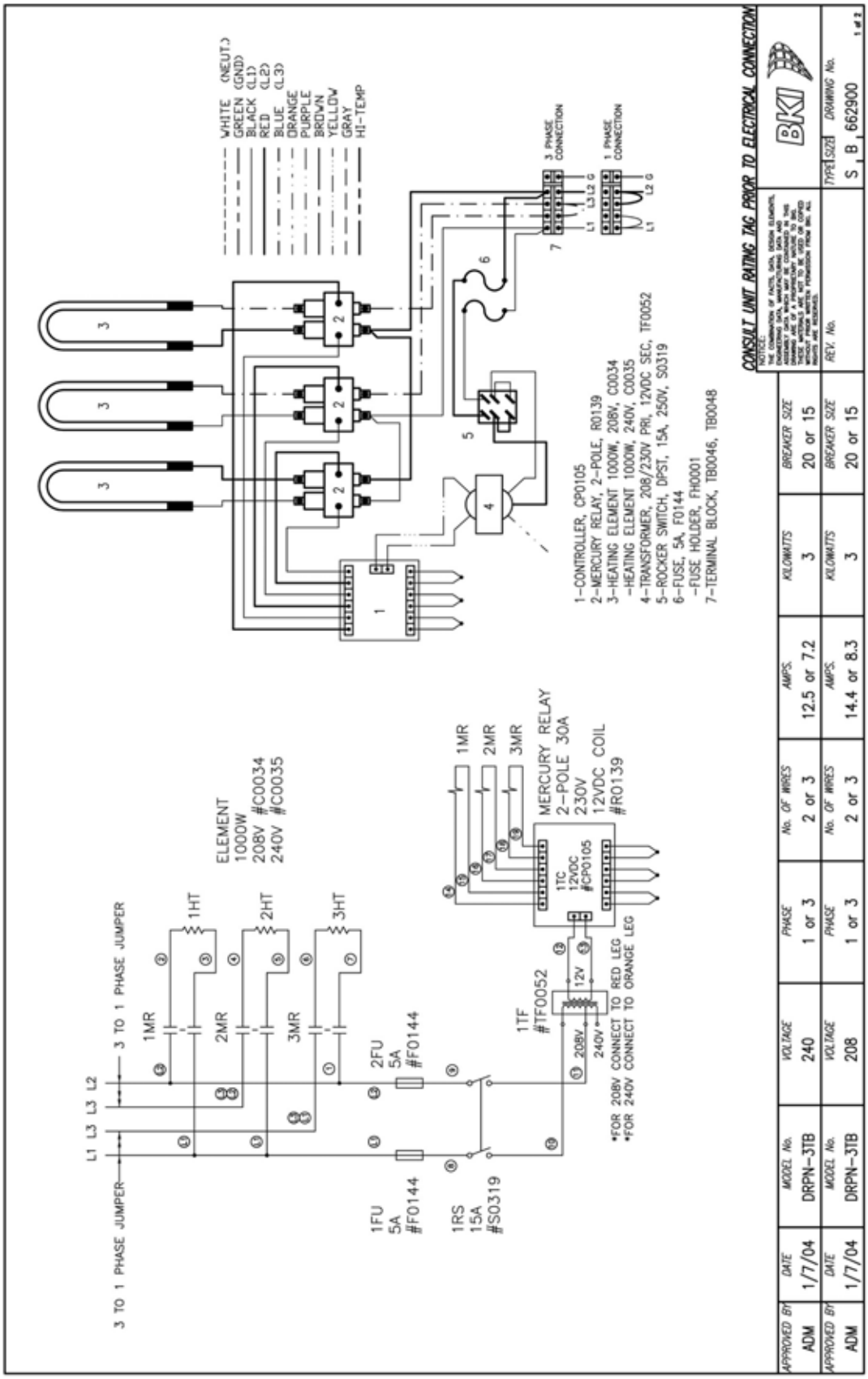
ITEM #	PART #	DESCRIPTION
1	C0034 C0035	CALROD, 208V 1000W CALROD, 240V 1000W
2	FB66238009	ELEMENT ENCLOSURE
3	SCR133	SCREW, 10-24 X 1/2 HEX CAP
4	FB66236009	ACCESS PLATE
5	FB66252909	HEATING ELEMENT COVER W/TAB
6	FB67642409	THERMOBULB NEST WDC
7	NUT076	NUT, 10-24 PALNUTS
8	FB66236209 FB66236309	ELEMENT COVER, END DRPN-3TB ELEMENT COVER, CTR DRPN-3TB
9	FB66237909 FB66237809	COVER, ELEMENT CVR.,END DRPN-3TB COVER, ELEMENT CVR.,CTR DRPN-3TB
10	WSH037	WASHER, 3/16 SAE FLAT
11	WSH246	WASHER, #10 INT TOOTH S/S

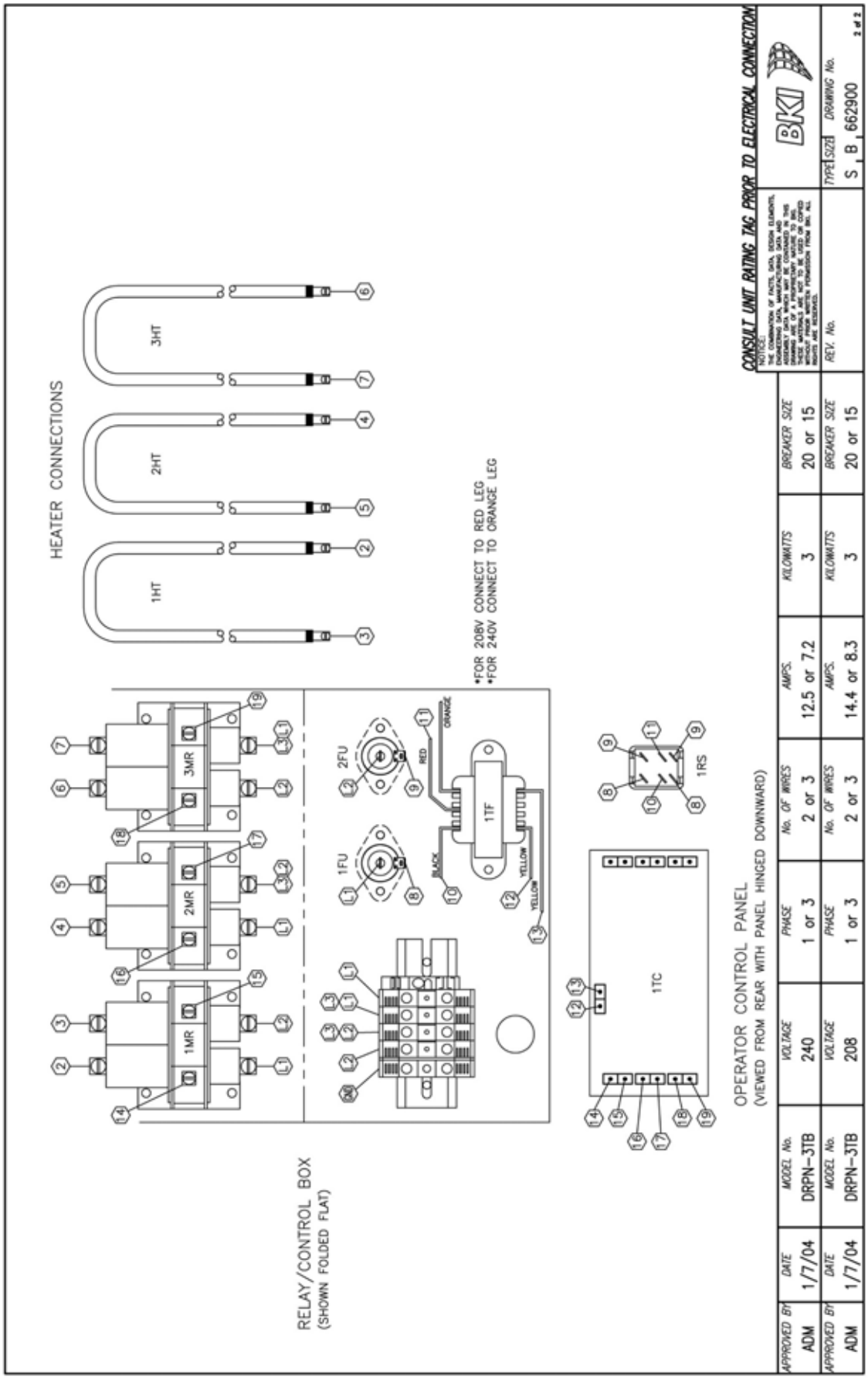
Control Box Assembly



ITEM #	PART #	QTY.	DESCRIPTION
1	N0537	1	DECAL, DRPN-3TB W/ UMC-X3
2	FH0001	2	FUSE HOLDER, 15A 300V HPF-EE
3	F0144	2	FUSE, 5A 600V SC5 BUSSMAN
4	R0139	3	RELAY MERCURY 2 POLE
5	S0319	1	SWITCH, RKR DPST 15A 250V
6	AN10507300	1	TERM BLOCK ASSY MSR
7	TF0052	1	TRANSFORMER, 208/240-12 20VA
8	CP0105	1	CONTROLLER, DIGITAL 3 WELL
9	SCR469	8	SCREW, 6-32 X 3/16 SLT RND
10	SP0042	4	SPACER, 6-32 X 3/8 PLASTIC/ NYLON

Wiring Diagrams




CONSULT UNIT RATING TAG PRIOR TO ELECTRICAL CONNECTION
HEATER CONNECTIONS
1HT
2HT
3HT
*FOR 208V CONNECT TO RED LEG
*FOR 240V CONNECT TO ORANGE LEG
RELAY/CONTROL BOX
(SHOWN FOLDED FLAT)
1MR
2MR
3MR
1FU
2FU
1TF
1TC
1RS
RED
ORANGE
BLACK
YELLOW
YELLOW
OPERATOR CONTROL PANEL
(VIEWED FROM REAR WITH PANEL HINGED DOWNWARD)
APPROVED BY ADM DATE 1/7/04 MODEL No. DRPN-3TB VOLTAGE 240 PHASE 1 or 3 No. OF WIRES 2 or 3 AMPS. 12.5 or 7.2 KILOWATTS 3 BREAKER SIZE 20 or 15
APPROVED BY ADM DATE 1/7/04 MODEL No. DRPN-3TB VOLTAGE 208 PHASE 1 or 3 No. OF WIRES 2 or 3 AMPS. 14.4 or 8.3 KILOWATTS 3 BREAKER SIZE 20 or 15
BKI
REV. No.
TYPE SIZE DRAWING No.
S B 662900
2 of 2

Appendix A - Digital Controller Information

Turning Controller On and Off

Hold **CTRL RESET** down for 20 seconds to turn controller off. The display shows “OFF”. Press **CTRL RESET** to turn controller on. Upon start up or reset, sequence display shows “][3” then “DrY”.

Reading the Display

The wells are numbered from left to right. The display will cycle through well number (-1-, -2-, -3-) then the corresponding temperature of well. The display contains three (3) decimal points. The decimal points turn on and off to denote elements cycling. The heat light turns on if any element is on.

Programming Temperature Setpoints

Pressing and holding the **TEMP SET** button will cause the controller to beep and the display will intermittently flash between the well number and the programmed setpoint temperature.

To adjust setpoint temperature, hold **TEMP SET** down and press **UP** or **DOWN** arrows to adjust temperature. Each press of the **UP** or **DOWN** arrow will adjust the setpoint temperature one increment. Press and hold the **UP** or **DOWN** arrow to increment rapidly.

To change well setting, hold **TEMP SET** down and press **RESET**. The display will intermittently flash the well number (-1-, -2-, -3-). Each additional press of **RESET** will increment the well number.

Historical Duty Cycle

The controller is equipped to operate temporarily with the loss of one or more temperature probes or with temperature probes out of calibration. When the unit is operating in historical duty cycle mode, the unit will run at the approximate equivalent temperatures as when temperature probes were functional. To denote that the unit is functioning in historical duty cycle mode the display will cycle with well number then “20d” or some number with “d” instead of a temperature.

To adjust the setpoint when in historical duty cycle, hold **TEMP SET** down and press **UP** or **DOWN** arrows to adjust the setpoint. Each press of the **UP** or **DOWN** arrow will adjust the setpoint one increment. Press and hold the **UP** or **DOWN** arrow to increment rapidly.

Error Codes

FLASHER	ERROR CODE	PROBLEM DESCRIPTION/(SERVICE PARTS)
RED	Combination of codes below	Multiple failures have occurred and have caused a critical situation (RED). This means a piece of equipment needs immediate attention because it cannot hold its temperature or an alternative backup plan needs to be started.
RED	r1F, r2F, and/or r3F (All Elements Off)	Heating element or contactor has failed to turn on or all elements have failed to turn on. Turn off power and breakers and then turn them back on. Call for service immediately if this does not work and all error codes display. (HEATING ELEMENT, FUSE, ON/OFF SWITCH, MERCURY CONTACTOR)
RED	r1O, r2O, and/or r3O (All Elements On)	Element(s) are stuck on. Turn power switch and breaker off then back on. If problem persists call for service. The problem could be shorted wires inside unit. It could also be a temporary side effect of temperature probes broken and intermittently touching. (TEMPERATURE PROBES, WIRES, CONTROLLER)
YELLOW	TC1, TC2, and/or TC3	Temperature probe is outside its standard calibration and heat cycle times. System will default into Historical Duty Cycle Mode. Turn on/off unit to see if the problem comes back. If so call for service. (TEMPERATURE PROBE, ELEMENTS)
YELLOW	0-1, 0-2, or 0-3	Thermocouple that is used by the display has been disconnected or broken. Probe wire may have been cut, pulled on, or temperature probe needs to be replaced. (TEMPERATURE PROBE)
NONE/RED	CCC	Set and Up buttons are stuck down and will not release. Gently push on the Set and Up buttons and attempt to free the buttons. Have service re-adjust the board distance to the buttons. (CONTROLLER)
NONE/RED	HI, UP	Up button is stuck down and will not release. Gently push on the Up button and attempt to free the button. Have service re-adjust the board distance to the button. (CONTROLLER)
NONE/RED	Lo, DN	Down button is stuck down and will not release. Gently push on the Down button and attempt to free the button. Have service re-adjust the board distance to the button. (CONTROLLER)
NONE/RED	rLo, RES	Reset button is stuck down and will not release. Gently push on the Reset button and attempt to free the button. Have service re-adjust the board distance to the button. (CONTROLLER)
NONE/RED	Slo, SET	Set button is stuck down and will not release. Gently push on the Set button and attempt to free the button. Have service re-adjust the board distance to the button. (CONTROLLER)
NONE	Xd	One or more temperature probes have failed or are out of calibration. The unit is now running in safe mode called historical duty cycle mode. The unit will run at approximately the same temperature as it did when the temperature probe was present. (TEMPERATURE PROBE)
NONE	][3, DrY	Startup sequence display for X3 control identifier and 3 element dry well configuration.
NONE	OFF	Reset button has been held down for 20 seconds thus turning off controller. Push reset button to start back up.
NONE	HUP	System is heating up. Heat-up can take up to an hour depending on the elements of your system.

P.O. Box 80400, Simpsonville, S.C. 29680-0400, USA
http://www.bkideas.com

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